REMARKS

Regarding the status of the present application, Claims 1-5 have been amended, and Claims 1-5 are pending in this application. Reconsideration of this application is respectfully requested.

The specification has been amended to correct two typographical errors so that the text agrees with what is shown in Fig. 1.

Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by US Patent No. 3,623,105 issued to Kamen et al. The Examiner's position is that "Kamen show in Fig. 4 a signal controlled laser oscillator 42, a signal controlled microwave oscillator 46, and a single sideband mixer 44."

The Kamen et al. patent discloses in its Abstract that "A communications system provides a practical means for transmitting a plurality of input information signals, such as television signals, over a single transmitter. The signals are combined or multiplexed to form a composite signal which serves to modulate an initial carrier signal. That modulated signal in turn pulse modulates a transmitter carrier to produce a pulse width modulated signal that contains all the essential information of the input signals." The Kamen et al. patent thus elates to television transmission systems, as is stated therein.

The Kamen et al. patent discloses at column 4, lines 34-51 , referring to Fig. 4, that "Fig. 4 illustrates schematically a variation in the transmitter of FIG. 1 in which one of the sidebands and the carrier is suppressed leaving only a single sideband for transmission to the receiver. As shown, the composite modulating signal from signal compiler 10 is applied to a voltage-controlled oscillator 42 having a nominal frequency of fo, the output of which is applied to a mixer 44. Mixer 44 also receives a high frequency signal at a frequency fe from a high-frequency carrier source 46. The output of mixer 46 is the sum and difference of its two input signals, that is $fe + fo \pm \Delta f$, where Δf is the modulating signal produced by the composite video signal input to oscillator 44. The output of mixer 44 is applied to the input of a band-pass filter 48 which passes only one of the sidebands produced in mixer 44, to wit, $fe + fo \pm \Delta f$, and therefore suppresses the carrier and the other sideband. The output of filter 48 is coupled to an amplifier and antenna (not shown) for transmission to the receiver as before"

The present invention provides for a virtual coherent signal controlled laser oscillator for use in optical phase locked coherent receivers, and is intended for use in coherent optical transmitter and receiver systems. It is respectfully submitted that the Kamen et al. patent discloses or suggest nothing regarding optical receivers, optical phase locked coherent receivers or coherent optical transmitter and receiver systems. In fact, the term "optical is not used in the Kamen et al. patent. In addition, the term "laser" is not used in the Kamen et al. patent. Thus, it is respectfully submitted that the Kamen et al. patent has nothing to do with virtually coherent signal controlled laser oscillators.

With reference to Fig. 4 of the Kamen et al. patent, it is respectfully submitted that the voltage control oscillator 42 is not a signal controlled laser oscillator. The voltage control oscillator 42 is an RF device.

It is respectfully submitted that the high-frequency carrier source 46 is not a signal controlled microwave oscillator as is used in the present invention. As is clearly shown in Fig. 4, the carrier source 46 is not controlled by any signal input. In the present invention, the signal controlled microwave oscillator is controlled by a frequency control signal.

Furthermore, the mixer 46 of the Kamen et al. system generates an output that is the sum and difference of its two input signals (*fe +fo ± Δf*). This is not the case with the present invention. In the present invention, the single sideband mixer generates a signal controlled optical frequency signal. This optical frequency signal has a lower sideband at frequency f_0 and an upper sideband at frequency $f_0 + 2xf_m$.

Consequently, it is respectfully submitted that the teachings of the Kamen et al. patent do not provide for the present invention.

Independent Claim 1 calls for:

A virtually coherent signal controlled laser oscillator comprising:

a signal controlled laser oscillator that receives a fixed bias input signal and outputs an optical frequency signal $f_0 + f_m$;

a signal controlled microwave oscillator that receives a frequency control input signal and outputs a microwave frequency signal, f_m; and

a single sideband mixer that processes the signal output by the laser oscillator and microwave oscillator to output a signal controlled optical frequency signal.

It is respectfully submitted that the Kamen et al. patent does not disclose or suggest "a signal controlled laser oscillator", or "a signal controlled laser oscillator that ... outputs an optical frequency signal", or "a signal controlled microwave oscillator that receives a frequency control input signal and outputs a microwave frequency signal, f_m", or "a single sideband mixer that processes the signal output by the laser oscillator and microwave oscillator to output a signal controlled optical frequency signal", as is recited in Claim 1.

Therefore, it is respectfully submitted that the invention recited in Claim 1 is not disclosed or suggested by the Kamen et al. patent,. Accordingly, withdrawal of the Examiner's rejection and allowance of Claim 1 are respectfully requested.

Dependent Claims 2 and 3 are considered patentable based upon the allowability of Claim 1 a4. Therefore, it is respectfully submitted that the invention recited in Claims 2 and 3 are not disclosed or suggested by the Kamen et al. patent,. Accordingly, withdrawal of the Examiner's rejection and allowance of Claims 2, and 3 are respectfully requested.

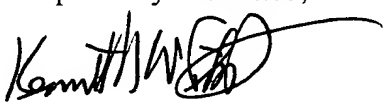
The Examiner indicated that Claims 2 and 3 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The finding of allowable subject matter in this application is appreciated. However, Claims 2 and 3 have not been placed in independent form at this time pending the Examiner's consideration of the above arguments regarding the patentability of Claim 1.

The Examiner also indicated that Claims 4 and 5 were allowable. The finding of allowable subject matter in this application is appreciated.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure to the extent indicated by the Examiner.

In view of the above, it is respectfully submitted that all pending Claims are allowable over the art of record and that the present application is in condition for allowance. Reconsideration and allowance of this application are earnestly solicited.

Respectfully submitted,



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